

Rosemary Elliott Smith

Curriculum Vitae

University of Chicago
✉ rellottsmith@me.com

Masters of mathematics with interests in smooth dynamics, measure classification theorems, and a (random) assortment of other topics.

Education

- 2018– **Graduate Student of Mathematics**, *pursing a PhD under the supervision of Alex Eskin and Amie Wilkinson*, University of Chicago.
- 2014–2018 **Mathematics Major, *cum laude***, *Revelle College*, University of California, San Diego.
- 2008–2014 **High School**, *Monte del Sol Charter School*, Santa Fe, N.M..

Professional Experience

- Summer 2019 **Applied Research Mathematician**, *National Security Agency*.
Possessed Top Secret (TS)/Secure Compartmented Information (SCI) security clearance, with background investigation and full scope polygraph. Conducted research on blockchain technologies and crypto currencies.
- Summer 2017 **Researcher**, *Collaborative Research Experience for Undergraduates (CURE)*, *Kemp Lab*, UC San Diego.
Researched random matrix theory, free probability, and facets of combinatorics as part of the CURE program. CURE is a program designed to facilitate collaborative mathematics research by undergraduates, better preparing and motivating them for graduate school. Mentor: Todd Kemp, Professor of Mathematics at UC San Diego.
- January 2015– **Head Database Developer**, *Levantine Cyber-Archeology Lab*, UC San Diego.
December 2017 Led the development team for the UCSD cyber-archaeological database, under a University of California Office of the President Catalyst Grant. Mentor: Thomas Levy, Distinguished Professor of Anthropology at UC San Diego.
- January 2015– **Undergraduate Researcher**, *Meyer Lab*, UC San Diego.
June 2018 Researched the correlations between traditional music and geography using a mathematical lens. Mentor: David Meyer, Professor of Mathematics at UC San Diego.
- Summer 2016 **Staff and Lead Programmer**, *Greek Excavation: Cyber-Archeology Field School*, UC San Diego and University of the Aegean.
Led the on-site programming team at the excavation of a Mycenaean tomb in Desfina, Greece. Mentor: Thomas Levy, Distinguished Professor of Anthropology at UC San Diego.
- Summer 2015 **REU Researcher**, *The Santa Fe Institute*.
Researched music using complex auditory scene analysis. Mentor: Doctor Tanmoy Bhattacharya, Scientist 5, Los Alamos National Laboratory and External Faculty at Santa Fe Institute.

Publications

Math:

R.E. Elliott Smith. "Uniformly Expanding Random Walks on Manifolds." (2022) DOI: 10.48550/ARXIV.2211.10483, URL: <https://arxiv.org/abs/2211.10483> *Preprint*

Elliott Smith, R.E., H. Huang, T.A. Kemp, Y. Ling, X. Luo, E. Lybrand, and J. Wang. "Random Matrices with Independent Diagonals." *in prep.*

Other:

Smith, F.A., **R.E. Elliott Smith**, S.K. Lyons, and J.L. Payne. "Body size downgrading of mammals over the late Quaternary." *Science* 360, no. 6386 (2018): 310-313.

Smith, F.A., **R.E. Elliott Smith**, S.K. Lyons, and A. Villaseñor. The accelerating influence of humans on mammalian macroecological patterns over the late Quaternary Invited manuscript, *Quaternary Science Reviews* 211, (2019): : 1-16.

Talks

April 2023 **Beyond Uniform Hyperbolicity**, Poland.
Uniformly Expanding Random Walks on Manifolds

February 2023 **Dynamics Seminar**, University of Chicago.
Uniformly Expanding Random Walks on Manifolds

October 2022 **Pizza Seminar**, University of Chicago.
Gerrymandering: What if Geometry had Politics

September **WOMP 2022**, University of Chicago.
2022 *The Mathematician's Terrible, No-Good, Very Bad Example*

July 2022 **Graduate Student Summer Seminar**, University of Chicago.
A sketch of the proof of Ratner's Theorem

Service

September **Seminar Organizer**, University of Chicago.
2022– Co-organized a dynamics proseminar beginning in Fall of 2022.

September **Orientation Organizer**, University of Chicago.
2022 Co-organized the graduate student orientation in 2022 (WOMP 2022), a week long math-heavy event intended to introduce new students to the department.

Summer 2022 **Seminar Organizer**, University of Chicago.
Co-organized a dynamics student seminar in the summer of 2022

May 2019– **Ombudsperson**, University of Chicago.

September Elected and served as graduate student ombudsperson for the mathematics department at
2021 the University of Chicago for two years. Acted as a liaison between graduate students and faculty, handling issues ranging from minor to serious.

Teaching

Instructor of Record:

Fall 2022 **Math 15250, Mathematical Methods for Economic Analysis**, University of Chicago.

Spring 2022 **Math 195, Linear Algebra**, University of Chicago.

Fall 2021 **Math 153, Calculus 3**, University of Chicago.
Spring 2021 **Math 133, Elementary Functions and Calculus 3**, University of Chicago.
Fall 2020 **Math 131, Elementary Functions and Calculus 1**, University of Chicago.

Teaching Assistant:

Spring 2020 **Accelerated Analysis 3**, University of Chicago, Alex Eskin.
Winter 2020 **Accelerated Analysis 2**, University of Chicago, Beniada Shabani.
Fall 2019 **Number Theory**, University of Chicago, John Boller.
Spring 2018 **Abstract Algebra 2**, University of California, San Diego, Alireza Salehi Golsefidy.
Winter 2018 **Abstract Algebra 2**, University of California, San Diego, Alireza Salehi Golsefidy.
Fall 2017 **Linear Algebra**, University of California, San Diego, Todd Kemp.

Honors and Awards

- GFSP (formally National Physical Sciences Consortium Fellowship) \$120,000 (2018-)
- Mathematics Undergraduate Employee of the Year (2018) (for excellence in teaching)
- UCSD Physical Sciences Dean's Undergraduate Award for Excellence, \$1000 (2017)
- UCSD Revelle College Norris Award Recipient (2017) (for excellence in the humanities)
- Ernest Mort Revelle Student Leadership Award Recipient (2017)
- United States Presidential Scholar Candidate (2014)
- National Merit Finalist (2014)
- Century Bank Super Scholar (2014)
- Prize for Scientific Excellence, the Santa Fe Institute \$500 (2014)
- Los Alamos National Laboratory Employees' Scholarship Fund Bronze Scholar, \$4000 (2014)
- AP Scholar with Distinction (2014)
- AP Scholar with Honors (2013)
- Ventures Scholar (2013)
- National Hispanic Recognition Scholar (2013)
- National Honor Society Member (appointed 2013)

Grants

Frontiers of Innovation Scholars Program, Exploring the Basis of Human Knowledge, Learning and Creativity: *Music from a Map; the Relation of Sound Characteristics to Geography*. **R.E. Elliott Smith**, recipient; D. Meyer, mentor. (January, 2016-January, 2017). \$4,000.

Frontiers of Innovation Scholars Program, Understanding Cultures and Addressing Disparities in Society: *Greece Expedition*. **R.E. Elliott Smith**, recipient; T. Levy, mentor. (January, 2016-January, 2017). \$4,000.